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ABSTRACT

The presentation addresses ways in which appropriate criteria for behavioral objectives with the severely handicapped are developed. Two kinds of criteria--those that established specified units and those that provide a standard to determine when the student has completed work on a specific objective--are identified. Specific considerations in selecting criteria are discussed and examples given for each: functionality, safety, social acceptability, normalization, accuracy, evaluability (all criteria should be measurable), random occurrence (which may make it difficult to determine whether mastery or luck was responsible for performance), and overlearning (enough practice to insure that the skill will maintain after discontinuation of instruction). (CL)

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Beyond Behavioral Objectives: Criteria

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Beyond Behavioral Objectives: Criteria

This part of this afternoon's presentation will focus on the development of appropriate criteria for behavioral objectives and will discuss nine specific considerations in setting apapropriate criteria for objectives. Of course, criteria can not be developed without considering the conditions and behavior that they help to evaluate, and so conditions and behavior will also enter into this discussion.

Two Kinds of Criteria

Two kinds of criteria exist in most objectives and are generally required. First, criteria for a correct response help determine if the performance of the behavior falls within prespecified limits. They often tell how long, how fast or how hard something must be done (e.g., within ten seconds; before the ball hits the floor; hard enough to ring the bell). They may specify error conditions (e.g., without spilling; without touching the floor). They are particularly important for response acquisition and fluency building objectives. Stimulus control objectives (which are less concerned about the exact nature of the response and more concerned about when it occurs) may also use them to indicate how quickly the response must follow the stimulus (e.g., within 15 seconds of being asked).

Second, mastery criteria provide a standard to determine when the student has completed work on a specific objective and training can be discontinued. They may provide information about the number of correct responses, a proportion of responses to opportunities, a percentage of responses that are correct and or a period of days, weeks, or months over which this level of performance must be maintained (e.g., on nine out of ten trials for five consecutive days).

Before going on to discuss more specific considerations in setting criteria, I want to say a few words about conditions and behavior. Conditions often distinguish between instructional control and functional control of a

behavior. For example, taking off a shirt might be under instructional control ("When asked to remove her shirt") or functional control ("At bedtime, after going to her room"). Usually our ultimate goal is functional control, but instructional control may be a valuable intermediate step. It is often used during initial training of response acquisition to ensure lots of opportunity for practice. Ten or even a hundred trials per day might be used at this stage. Bedtime, however, usually only occurs once per day and so repeated trials would be incompatible with true functional control. The difference in these conditions must also influence our criteria. A criteria of "on nineteen out of twenty trials for three consecutive days is fine for the instructional control phase but is obviously inappropriate for the functional control stage. Look at this example and see if you can find the problem:

> At lunchtime, when given a 250 ml. cup full of milk, Chandra will drink all the milk without spilling on 19 of 20 trials for three consecutive days.

As written, this objective requires Chandra to drink almost five litres of milk each day at lunch. Repeated trials are fine in most instruction, but here totally out of place. Replacing this mastery criterion with "on 19 of 20 consecutive days" might be more appropriate.

By the way, consecutive days should always refer to calendar days. If consecutive school days are the real intent, be sure to state it.

Specific considerations in selecting criteria

FUNCTIONALITY. As stated above most objectives ultimately must produce functional behavior. Often conditions and behavior statements in an objective point toward functional behavior, but criteria are inadequate to ensure functional behavior. Look at this example:

> After putting his shoes on in the morning, Phil will tie them with bows on 19 of 20 consecutive days.

On first inspection, this may not look too bad, but what if it takes Phil ninety minutes to tie each shoe. Is the skill likely to be functional outside the training environment? A rate specific criterion is needed here. How much time to allow would depend on the environmental requirements, but perhaps "in two minutes or less" would be suitable. Similarly, some objectives may need to specify duration, latency or amplitude of a behavior to become functional. Sometimes this can be accomplished by focusing on the environmental effect rather than an arbitrary measure. If we were concerned about a student pushing hard enough on a doorbell, for example, we could carefully measure the required force and then make that part of the criterion for a correct response. It would be a lot easier, however, to simply state "hard enough to activate bell."

SAFETY. No concern is more relevant to setting some criteria than safety. This is easily seen in the following objective:

> When encountering a controlled intersection, Pete will cross without being hit by a motor vehicle on 9 of 10 trials for 3 consecutive days.

No doubt you can find more than one problem with this objective, but the most glaring is the low safety criterion. For many objectives nine out of ten would be okay; for crossing the street, using powertools, using stoves, and other behavior with potential risk much stricter criteria are required.

SOCIAL ACCEPTABILITY. Closely related to the safety issue is the issue of social acceptability. Forgetting a belt or socks may be slightly unacceptable, but generally tolerated. forgetting pants or skirt is totatlly unacceptable and not tolerated. Stsrict criteria must be set for objectives that may influence social acceptability. This concern may be most clearly seen in deinstitutionalization. Often acceptable social behavior is a major determinant of community acceptance.

NORMALIZATION Clearly social acceptability is closely related to community norms and at first glance these concerns may seem almost identical. However, there is another aspect of normalization which we should consider. Non-handicapped individuals generally have some leeway in meeting community standards. Handicapped individuals often are faced with arbitrarily high criteria for the standards of their behavior. At a baseball game, if you see eight teen-aged, boys wearing suits and ties, don't be surprised if someone asks, "I wonder what group-home they're from?" Such remarks may be unkind, but setting abnormally strict standards for behavior may foster these attitudes and it is important that we work toward the normal range not toward "perfection." For example, in teaching eating skills we were concerned about our students using rotary chewing rather than munching. Our initial goal was 100%. When we observed non-handicapped individuals, however, we found that only 80 to 90% of their chewing was rotary. We were pursuing an arbitrarily high standard and had to lower our criterion to more normal levels. Looking at the performance of others is the best way of determining the normal range of behavioral standards.

ACCURACY. Many objectives use a percentage of accuracy. For some cases this is useful, but in the majority of cases it creates more problems than it solves. Look at the following objective:

> When sitting in a chair and asked to stand, Joe will stand with 85% accuracy.

In this case we must ask ourselves what accuracy means. We can measure accurately or answer questions accurately, but can we stand accurately (or inaccurately)? In order for a measure fo accuracy to occur, two forms of response class (correct and incorrect) must be identified (White & Haring, 1980). Then we can compute a percentage of accuracy by dividing correct responses by the total of correct plus incorrect responses and multiplying by one hundred. Note that this formula only deals with correct and incorrect responses: it never

incorporates non-responses. So in our example, if we ask Joe to stand ten times and he stands correctly four times and stands incorrectly once (on his head perhaps), his percentage of accuracy is 80% (four out of five) not 40% (four out of ten).

A second problem with percentages is that they don't tell us how large a sample of behavior is needed. For example, if we specify 100%, and Joe performs correctly on the first trial, he has attained 100% and needs no more training. If, on the other hand, he performs incorrectly on the first trial, he is at 0% and even if he then does ninety-nine correctly in a row, he will still only be at 99% because of that first trial. So that if we are going to use percent, it is still essential to specify the number of trials and/or responses evaluated.

A third problem is compatability of the number of trials and p cent required. For example, if 85% accuracy is specified and ten trials are evaluated, eight out of ten would yeild 80% and nine out ot ten would yeild 90%. For the student to meet the 80% criterion, he must actually perform at 90% or 100%. The 85% criterion is meaningless unless at least 20 trials are provided.

Usually the best solution is to avoid accuracy and simply state the number of correct responses out of a specified number of trials. Some objectives, however, in which right or wrong answers, correct or incorrect responses can occur may include accuracy as part of the criterion.

EVALUABILITY. Care must be taken that all criteria are measurable. Attention to conditions and behavior may be as important as the criterion itself for evaluation. For example, consider the problem with this example:

> When sitting at his desk and asked to "stand up", Lance will be able to stand on 9 of 10 trials for 3 consecutive days.

Of course, if Lance does stand up, it is reasonable to assume he is able to, but if he doesn't stand, does that mean he is not able to stand. We can

observe and measure standing, but not his ability. Now, some people argue that when we say "be able to" or "can" in an objective that it means the same as "will." If this is true "be able to" are three extra meaningless words and are best eliminated. If they do have meaning, however, it is even more essential that they be eliminated, since they make the objective unmeasurable. Similarly any description of behavior that can't be counted or measured makes the setting of the criterion meaningless.

RANDOM OCCURRENCE. Criteria must consider the probability of random occurrence. Consider the following example:

> When presented with a blue and red sock and told "give me the red one, Louise will give the requestor the red sock on 4 or 5 consecutive trials.

If we assume that Louise will give one of the two on each request, what are the chances of her getting at least 4 out of 5 correct? Actually, they are about one in five. This would mean that given five trials every day, chance would favor getting 4 out of 5 correct within 6 days of instruction. When this occurred it would not be possible to determine if mastery had been achieved or merely some lucky guessing. Increasing the number of trials, raising the ratio and requiring consecutive repetitions would greatly reduce the random chance of occurrence. For example, "9 out of 10 correct for 5 consecutive school days" would be extremely unlikely to occur by chance.

OVERLEARNING. Since mastery of an objective indicates that teaching of the objective will come to an end, we must be satisfied that the student has had ample practice so that the skill will maintain after instruction has been discontinued. This may be less essential when lots of natural practice will follow as part of the students daily routine or as part of instruction on the next objective. Some might suggest that if the student won't be using the skill frequently, we shouldn't bother teaching it in the first place. However, there are numerous exceptions. For example, emergency safety procedures may be

rarely used, but essential to learn and maintain.

The principle of overlearning requires that a mastery criterion be set that ensures frequent repetition of the correct response before mastery is assumed. Ten consecutive correct responses may be enough to demonstrate learning, but requiring ten consecutive correct responses each day for two weeks will greatly increase the prospects of maintaining the behavior weeks or months after training has been discontinued.

In considering these factors for setting criteria, it becomes apparent that no single criterion can be applied to every objective. The nature of the behavior, the student and the environment must be considered. Criteria often are given less attention than behvior and conditions in developing objectives. Often we observe entire IEP's with "90% accuracy" tacked on to each objective regardless of its appropriateness. However, it is essential that more meaningful criteria be applied if objectives are to be utilized as part of a wowrkable data-based teaching program.

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